MAXIMUM WASTE INVENTORY. Our Part A application requested storage for 42,500 gallons of bulk tank storage. A revised Part "A" application and a Part "B" application for the continued active portion of the facility will be mailed under separate cover. The waste described in the existing Part "A" which is applicable to this Closure Plan is segregated as follows:

Bulk wastes - Chlorinated -13,500 gallons (tanks 1, 5, 13 & Fill)
Flammable -19,000 gallons (tanks 2, 3, 4, 12 & 14)

DRUM AND CONTAINER CLOSURE. It is the intention of the management of Granville Solvents, Inc. to continue in operation as a Storage Facility/Transfer Facility for approximately 250 drums. The number of drums of solids above that number, if any, which are on site at the time of the commencement of closure operations will be consolidated into 20 cubic yard containers and shipped to Wayne Disposal, Belleville, Michigan. Only non-flammable and combustible solids will be bulked in accordance with the limitations placed on Wayne Disposal for accepting flammable materials. The process of emptying drum into the bulk container will be done by using a drum tipping device which is attached to the forks of a forklift truck. If the drums to be emptied are closed head 17E drums, the heads will be removed by cutting them our with a drum head cutter. Each drum will be secured in the tipping device by a chain binder. The drum will then be lifted over the side of the bulking container and emptied. Exposure to spills is minimal using this equipment because the drum is under control at all times.

A .006" polyethylene liner will line the bulk container. Any spills or leaks from this container will be cleaned up with an absorbent and the soil which has been contaminated will be removed to the container. The container will be positioned in the west slot of the south side of the main building. This is done to avoid exposure to rainfall, and to minimize the inevitable small amount of odor which emptying drums will create in spite of a covering over the container to trap those vapors. A temporary security fence will be erected around the exposed part of the container to comply with security requirements. Waste transported off-site for disposal in drums will have either a clay or ground corncob absorbent added to remove any free liquid and to fill any void spaces. The proper packing of the drums will be confirmed by running a steel rod down through the material to check for voids and free liquids.

Flammable liquids will be shipped in tanker trucks to one of several authorized waste fuel-burning sites such as Systech/GPI

in Paulding, Ohio. Safety of the loading and handling of bulk flammable liquids is insured by following the guidelines from Section D of our Part "B" application - Process Information "...The volume of the tankwagon is confirmed with the driver before pumping is started. Fire extinguishers and absorbent material are placed so that any spill may be contained and the potential of a fire is minimized in the event of a broken pressure hose. During start up, the hoses and connections are inspected to detect any leaks around gaskets and connections. Truck drivers are cautioned to stay near their pump emergency shut off valves. Buckets are positioned under each connection to catch any small droplets of liquid, and to catch any residual liquids left in the hoses and manifolds after pumping is completed and the hoses are being disconnected. Frequent inspection of the liquid level in the tankwagon are conducted by facility personnel."

Recyclable halogenated material will be sold to Chemtron, Inc. of Avon, Ohio, or Environmental Processing Services, Dayton, Ohio, for recycling. Disposal of containerized chlorinated wastes addressed above will be accomplished by shipping the liquids to Chemtron and/or EPS, and the bulked solids shipped to Wayne Disposal. Empty drums will be recycled with Columbus Steel Drum Co., Blatt Blvd., Blacklick, Ohio.

TANK CLOSURE. Underground tanks will be cleaned in situ by recirculating recyclable solvents to dissolve any settled solids until it is apparent that no further waste residue will be dissolved. The cleanliness of all the tanks will be determined by visible evidence of any waste remaining. If an unacceptable amount of solids remain after excavation and visual inspection through manheads or large fill openings, solvent can still be recirculated until such time as those solids are removed. The spent solvent from this cleaning process will then be shipped to an authorized Storage Facility/Recycler for recycling.

TANK CONTENT ANALYSES. Enclosed in this Plan, below, is an analysis of the contents of each tank. Copies of Gas Chromatographic traces of recent analyses of tanks 2, 3, 4, 5, 12, 13, and 14 are included as Figures 5 through 12. Tank 1 contains a semi-solid Methylene Chloride/Polyester resin material with the approximate content as noted. The Fill Tank contains the same material, and the Rundown Tank is empty. Tanks 2, 3, 12, and 14 will contain wastes for recycling as fuel. This material will be shipped as a Hazardous Waste under a Uniform Hazardous Waste Manifest for further processing by the receiving Facility to fuel grade specifications. Tanks 1, 5, and 13 contain recoverable levels of chlorinated solvents and will be shipped for recycling to the above named Facilities. Only tanks which have been properly cleaned in accordance with 40 CFR 265.197 will be released to non-permitted persons or companies.

At the point at which the tanks have been purged with solvent

as much as is practicable, the top tanks (numbers 12 through 14) will be excavated and removed for inspection through the 4" filling openings on the tops and further cleaning as necessary either by pumping more solvent through the tanks, or by physically entering them through open manheads. Tank #15 does not contain hazardous waste but will be excavated and removed along with the other previously mentioned top tanks.

Tanks numbers 1 through 5 are located below and between tanks 12 through 15 as shown in Figures 2 and 3 enclosed, and will be excavated to expose the manheads. Manheads will be opened and any remaining material will be removed until the tanks are cleaned. It is felt that no entry into the tanks will be necessary, so no special breathing apparatus will be needed other than breathing masks normally used. Should entry into the tanks be required to remove any remaining waste, full breathing and protection suits will be used with required safety lines and backup personnel. All tanks will be excavated and removed for proper disposal as noted above. The smaller tanks (numbers 12 through 15) will be removed for disposal or reuse.

DISMANTLING AND DECONTAMINATION. Following waste removal, all piping to and from all the storage tanks, pumps and distillation equipment as shown in the enclosed diagram will be disconnected, dismantled and decontaminated. This piping will be disposed of with the contaminated wastes at an approved landfill. The work will be supervised and performed using employees trained to properly handle such wastes. Appropriate gloves, face masks, and protective clothing will be worn to avoid any unnecessary exposure to the contaminants. Clay absorbent will be used to control any possible spills which might occur during these processes. This used absorbent will be temporarily stored in unlined drums until it can be added to the bulk waste container for shipment to the treatment site.

Disposal of distillation equipment will be accomplished by selling the properly cleaned equipment to one of several businesses who would use it for on-site recycling of solvents. All solvents and residue will be removed from the equipment prior to transporting.

EXCAVATION SCHEDULE. Excavation activities for cleanup of the areas to be closed will proceed according to the following plan. Prior to any excavation, a Statistical Mean Level of Contamination will be determined using procedures described below. Excavation will then proceed.

TOP TANKS. When the top tanks have been cleaned (see above) to the satisfaction of an independent Professional Engineer, they will be excavated and removed for proper disposition (scrap or resale). The excavated earth will be piled in Area A (Figure 1) as appropriate. Upon the receipt of the analysis of the composite earth, it will either be removed for disposal or set aside for backfill.

DEEP TANKS. Then the deep tanks (1 through 5) will be inspected for cleanliness to the satisfaction of the Professional Engineer. If satisfactory, the tanks will be removed for the same disposition as the smaller tanks. Samples will be taken as described below and any further excavation will be continued until such time as the cleanliness criterion is achieved. The excavated earth will be disposed of or set aside for backfill as above.

EXCAVATION OF AREA "A". At this point, all excavated earth will either have been set aside as non-hazardous or removed for disposal. The top 4" of soil in Area A will be self-declared as hazardous and removed for disposal as will 6" of half the surface in Area "E", the Still Building. Following these actions, sampling of the next 4" layer will proceed as proposed below.

SOIL SAMPLING PROGRAM. Sampling of the site will be performed in accordance with Test Methods for Evaluating Solid Wastes (SW-846). Areas A, C, D, E, and F which correspond roughly to West Exterior Drum Storage Pad, North Drum Storage Area, East Storage Area, Still Building, and West Drum Pad Runoff Area, will be divided into imaginary 2' X 2' grids. Each grid square will be numbered consecutively within its area (Figure 2).

STATISTICAL PRELIMINARIES. A preliminary determination of Mean contamination level will be necessary prior to any excavation of areas A, C, D, E, or F. A number of random samples will be collected and analysed for each area. The assumptions are as follows:

1. 10 random samples (Figure 4) will be drawn in the grids to the West of the main building where the most activity took place (Area A).
2. Since substantially less storage activity took place in the other areas, only 3 (Figure 4) will be drawn in each of them.
3. From the results of the analyses done on-site, data will be plugged into the formulae below which will establish sample mean, and variance and then the number of samples to be collected.

SAMPLING PROCEDURES. Sampling and analytical procedures will follow these steps:

1. Samples will be drawn with an auger bore to 4 inches.
2. Reagent methyl alcohol will be used to extract any organic components in the sample.
3. Extracted liquids from these samples will be analysed on a Hewlett-Packard 5750B Research Gas Chromatograph available on-site using certified standards for Halogenated Solvents.
4. All samples, extracts and calibration data will be

retained for any future verification procedures by an outside source.

When a statistical mean level of contamination has been determined using the formulae below, another set of correlating analyses will be taken using the number of samples determined by those same formulae. From the results of these analyses, the decision making process of how much earth to remove and from where will begin.

EXCAVATION CRITERIA. When the analytical results have been completed and a clear understanding of the state of the site has been obtained, excavation of soil and tanks will proceed using the following criteria.

1) Criterion for the decision to excavate will be based on a detected level of 1 PPM of any chlorinated solvent found during the analyses of samples done on-site using a straight dilution and injection method.
2) Soil above the tanks in Area B will be excavated and piled. Four samples from this pile will be drawn and analysed as above. If no contamination is found, this soil will be used to back fill the hole left from removal of the tanks.
3) Excavation and removal of the tanks will continue until all tanks are removed, at which time samples which were drawn from at least three points at a depth of 6" beneath each tank will be analysed using the same procedures and criteria as above. Excavation will continue in 6" increments. Further sampling of deeper soil will be conducted if the initial layer is contaminated.

STATISTICAL FORMULAE. Formulae which are found in SW-846 are as follows:

Population mean $u = \frac{\sum_{i}^{n} X}{N}$

Sample mean $x = \frac{\sum_{i}^{n} X}{n}$

Variance of sample $s^2 = \frac{\sum_{i}^{n} X_i^2 - (\sum_{i}^{n} X_i)^2/n}{n-1}$

Standard deviation $s = \sqrt{s^2}$

Confidence Interval $CI = \bar{x} \pm t_{.20}\ s_{\bar{x}}$

Number of samples $n = ?$

In the event that no contamination is found, no soil will be removed. Following all such analytical and soil removal procedures, random samples will be drawn according to the above sampling plan and sent to an external laboratory for analysis and confirmation using Test Method 5030 (purge-and-trap gas chromatographic procedure) and Test Method 8010 (procedure for detecting halogenated volatile organics). A 1 PPM contamination level of chlorinated solvents will be used as the decision

point for any further activity.

PROFESSIONAL ENGINEERING INPUT. The underlying assumption is that a Professional Engineer will be involved at any point which requires verification of the proper procedure or completion of a step in the process of Closure.

CLOSURE SCHEDULE. Our proposed schedule of Closure is as follows:

1. Reduction of drum storage on site to 100 drums by June 30, 1984.
4. Cease receiving material for storage in tanks on Day 1 of implementation of Closure Plan.
5. Emptying of the four (4) uppermost underground tanks on the west end of the facility (numbers 12, 13, 14, and 15) by Day 30.
6. Emptying of the remaining deep tanks (numbers 1, 2, 3, 4, and 5) and the Sludge Tank, and the Fill Tank on the east end of the Facility by Day 60.
7. Excavation of the top four (4) tanks for inspection by Day 35.
8. Excavation of tanks 1 through 5 for inspection by Day 65.
9. On Day 5 cease operation of the Still and dismantle of distillation system for removal from the site.
10. Completion of all waste removal, dismantling, decontamination, and testing by Day 90.

EXTENSION FOR CLOSURE TIME. There is no evidence of any contamination from leakage from our underground storage tanks, but, because of that continuing potential, the tanks will be emptied as soon as possible following the date of this letter. We shall continue to accept drum/container wastes acting as a Transfer Facility as per the Interim Status Permit level of 100 drums. Appropriate construction activities have already commenced in upgrading the Facility to meet EPA standards for containerized storage only. This includes primary and secondary spill containment structures, fire fighting foam applicators, and security structures.

CLOSURE COST ESTIMATES. For the above wastes, the costs for removal are as follows:

Bulk wastes -	Chlorinated	7,000 X $.10/gal	= $ 700
	Flammable	13,500 X $.15/gal	= 2025
Excavation -	Tanks 12, 13, 14, 15 for removal and then excavation and removal of 1, 2, 3, 4, and 5		= 632
Excavation and disposal of excavated earth			= 7830
Testing - Core samples and Certification			= 5000
Miscellaneous			= 2500
		Total	$18687

Please find as enclosures to this document copies of excavation

quotes. Disposal of tanks will be accomplished by selling them to several recyclers who have committed to purchasing them in exchange for a freight charge. Chemical disposal costs are based on a disposal fee for still bottoms from the recycling of these materials by another recycler. $.15 per gallon for flammable material is the standard charge from Systech/GPI. Earth disposal costs are based on $35 per cubic yard plus $300 freight for each 20 yard load. Total "worst possible" excavation will be 146 cubic yards for a total disposal cost of $5110 and freight of $2400 plus excavation costs of $320 for a total of $7830. Professional Engineering costs are based on $65 per hour for 30 hours ($1950), and analytical costs of $200 for 15 analyses ($3000).

ANALYSIS BY TANK

Tank #	Contents (by major %)		Flash Point
1	Methylene Chloride	25%	None
	Polyester Resin	55%	
	Water (layered)	20%	
2	Methanol	4%	58 F
	Acetone	12%	4 F
	Ethanol	3%	70 F
	Methylene Chloride	.5	NA
	Isopropanol	7%	63 F
	Methyl Ethyl Ketone	4%	22 F
	Ethyl Acetate	3%	31 F
	Isopropyl Acetate	5%	60 F
	Toluene	34.5%	42 F
	Cyclohexanone	10%	116 F
	Xylene(s)	15%	86 F
	Diacetone Alcohol	1%	142 F
3	Methanol	.5%	58 F
	Acetone	5%	4 F
	Ethanol	3%	70 F
	Methylene Chloride	.5%	NA
	Isopropanol	5%	63 F
	Methyl Ethyl Ketone	3%	22 F
	Ethyl Acetate	3%	31 F
	Isopropyl Acetate	5%	60 F
	Trichloroethylene	2%	NA F
	Toluene	20%	42 F
	Cyclohexanone	10%	116 F
	Xylene(s)	18%	86 F
	Diacetone Alcohol	8%	142 F
	Non-volatiles	17%	NA
4	Water	94.85%	NA
	Methanol	1.5%	58 F
	Acetone	1.25%	4 F
	Methylene Chloride	1.5%	NA
	Butylene Oxide	.1%	74 F
	Isopropanol	.1%	63 F
	1,1,1-Trichloroethane	.1%	NA
	Trichloroethylene	.5%	NA
	Toluene	.05%	42 F
	Butyl Cellosolve	.05%	157 F
5	Still Bottoms:		

	Aliphatic Naphtha	-	19%	58 F
	Acetone	-	1%	4 F
	Butyl Cellosolve	-	5%	157 F
	Toluene	-	15%	42 F
	Cyclohexanone	-	10%	116 F
	Chlorinated Solvents:		50%	NA
	Methylene Chloride-		10%	
	1,1,1-Trichloroethane		20%	
	Trichloroethylene -		20%	
12	Methanol	-	8%	58 F
	Acetone	-	15%	4 F
	Ethanol	-	61.5%	70 F
	Ethyl Acetate	-	2%	31 F
	Trichloroethylene	-	.5%	NA
	MIBK	-	10%	74 F
	Xylene	-	3%	86 F
13	Still Bottoms:			
	Aliphatic Solvents	-	35.2%	58 F
	Acetone	-	1.6%	4 F
	Cellosolve Solvent	-	2.4%	57 F
	Perchlorethylene	-	16%	42 F
	Methylene Chloride-		9.6%	
	1,1,1-Trichloroethane		13.2%	
	Trichloroethylene -		22%	
14	Lacquer Thinners:			
	Methanol	-	2%	42 F
	Acetone	-	9%	4 F
	Ethanol	-	7%	70 F
	Methylene Chloride	-	1%	NA
	Isopropanol	-	9%	63 F
	Methyl Ethyl Ketone-		6%	22 F
	Ethyl Acetate	-	5%	31 F
	Trichloroethylene	-	2.5%	NA
	Isobutanol	-	1%	95 F
	Toluene	-	23%	48 F
	Perchlorethylene	-	1%	NA
	Isopropyl Acetate	-	1.5%	60 F
	Cyclohexanone	-	6%	116 F
	Xylene(s)	-	18%	86 F
	MIBK	-	3%	157 F
	Cellosolve Acetate	-	2%	134 F
	Isobutyl Acetate	-	3%	83 F

15 Reclaimed Methylene Chloride (non-waste)

Fill Tank:

Polyester Resins un-polymerized 80%
Methylene Chloride - 10%

Rundown Tank:
Day tank - contained recycled solvents but has been empty for months

CERTIFICATION

I hereby certify under penalty of law that I have personally prepared this Closure Plan using information available to me. I believe the information upon which the Closure Plan is based to be true, accurate, and complete to the best of my knowledge. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: March 31, 1985 Signature: John E Lee